

eBee: An Electronics Quilting Bee and Game

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1 Introduction

eBee is a STEAM (science, technology, engineering, arts and math) project that combines game design, modern quilting, and e-textiles to blend the social experiences of a board game, a quilting bee, and an electronics maker community. The eBee team is developing a system consisting of a kit of pre-made components and design guidelines for producing quilting-based, electronics-enabled games. eBee merges the traditional craft of quilting, the social context of a board game, and “maker” and hacking culture to create a social experience aimed at bridging gender, ethnic, generational and social gaps associated with electronics and craft.

The eBee workshop for the SIGGRAPH Studio will be one of a series of participatory design workshops to develop a system and social framework for creating eBee experiences. Participants will be given a game design challenge and a set of components to develop and prototype game ideas around the theme of building an electronic quilt in the process of playing a board game. The game mechanic will revolve around completing circuits to activate effects that include LEDs, fans, or other electronic gadgets, activated by e-textile-based connections such as magnetic snaps or conductive buttons (Figure 1).



Figure 1. Buttons and buttonholes sewn with conductive thread.

2 Creative Disruption

The long-term goal of our project is to facilitate the development of “eBees” in a variety of communities and contexts. A soldering iron alongside a sewing machine is a powerful vehicle for interdisciplinary collaboration and peer-learning. By bridging the craft communities of quilting with the male-dominated communities of electronics and technology, there is the potential to reach wide audiences:

1) Women & Girls: Quilting is historically and traditionally a feminine craft. Our research and the research of others has shown

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that creative activity, especially in a community setting, can be a strong motivator for women and girls acquiring STEM skills.

2) Underrepresented Ethnic Groups: As an international folk tradition, quilting and other needlecrafts have a strong representation of ethnic minorities. With their heavy reliance on geometry, quilts are often cited as an example of STEM practices in culturally-situated folk traditions.

3) Intergenerational: Quilting is a highly intergenerational folk craft. Modern quilting is the center of a vibrant technologically-facilitated international community that is already engaged with high-tech machinery such as computer-enabled sewing machines.

3 In the Studio

Our studio workshop will take place over the several days of the conference, beginning with an introduction to the project, the design challenge, and the components.

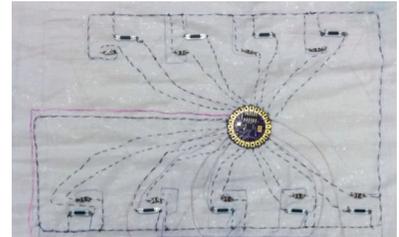


Figure 2. Substrate for the eBee quilt.

Participants will work in teams to generate and prototype game ideas around the theme of the workshop. There will be several prescheduled times to convene, collaborate and playtest each other’s ideas. In between, participants can drop in to work on their game prototypes on an ongoing basis, for time spans varying anywhere from 20 minutes to three hours. The workshop will conclude with a show-and-tell in which participants present and demonstrate their final game ideas to other participants and interested SIGGRAPH attendees. Participants will be given a game design challenge and a kit of parts that will include an electronic quilt substrate (Figure 2) as well as various e-textile components such as magnetic snaps, conductive buttons, and LED lights.

The setting aims to foster a collaborative, folksy and social atmosphere: a circle of chairs will be set up for participants to be able to face other crafters, with a central table for playtesting game ideas and doing electronics hacking, and smaller tables to the side containing the different materials needed for their projects: textiles, notions, and electronics components. Décor and props will be included to create an inviting, domestic-themed environment. The experience will harken back to traditional quilting bees, where participants would sit and sew together, chatting and learning techniques from each other, sharing and swapping to modify each other’s work.

At the end of the workshop, participants as well as other SIGGRAPH attendees will be invited to play the game prototypes.